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Graduação: Engenharia da Computação

PRÁTICA 01

Escreva um algoritmo em linguagem C que atenda os seguintes requisitos: ✓ Os campos de um registro devem armazenar o Nome, dia de aniversário e mês de aniversário. ✓ Solicite ao usuário que digite 12 registros. ✓ Os registros devem ser armazenados em um vetor. ✓ Através do ponteiro para o vetor de registro mostre em cada um dos meses do ano quem são as pessoas que fazem aniversário. Para demonstrar o funcionamento faça as capturas de tela do terminal utilizando seu nome completo e o seu dia e mês de aniversário em um dos registros de entrada solicitado.

```
/* Project 77

       PRACTICE 1

       Write an algorithm in C language that meets the following requirements:
       1) The fields of a record must store the Name, birthday and month of birthday;
       2) Ask the user to enter 12 records;
       3) Records must be stored in a vector;
       4) Through the pointer to the record vector, show in each month of the year
          who are the people who have birthdays.

       To demonstrate the operation, take screenshots of the terminal using its name
       complete and your birthday day and month in one of the requested input logs.

       ************************************************************
       Output:
       Do you What to enter details of a anniversary date (y or N)?y
       Please enter the ID number to the next register: 1001
```

```
Please enter the name of the boy or girls: Gilberto Jr
Please enter the Day of Anniversary to this register: 14
Please enter the Month of Anniversary to this register: 1
Do you What to enter details of another anniversary date (y or N)?y
Please enter the ID number to the next register: 1002
Please enter the name of the boy or girls: Mara Maravilha
Please enter the Day of Anniversary to this register: 12
Please enter the Month of Anniversary to this register: 2
Do you What to enter details of another anniversary date (y or N)?y
Please enter the ID number to the next register: 1003
Please enter the name of the boy or girls: John Lennon
Please enter the Day of Anniversary to this register: 30
Please enter the Month of Anniversary to this register: 3
Do you What to enter details of another anniversary date (y or N)?y
Please enter the ID number to the next register: 1004
Please enter the name of the boy or girls: Elton John
Please enter the Day of Anniversary to this register: 18
Please enter the Month of Anniversary to this register: 4
Do you What to enter details of another anniversary date (y or N)?y
Please enter the ID number to the next register: 1005
Please enter the name of the boy or girls: Yves SaintClair
Please enter the Day of Anniversary to this register: 19
Please enter the Month of Anniversary to this register: 5
Do you What to enter details of another anniversary date (y or N)?y
Please enter the ID number to the next register: 1006
Please enter the name of the boy or girls: Emily White
Please enter the Day of Anniversary to this register: 14
Please enter the Month of Anniversary to this register: 6
Do you What to enter details of another anniversary date (y or N)?y
Please enter the ID number to the next register: 1007
Please enter the name of the boy or girls: Eleanor Endevour
Please enter the Day of Anniversary to this register: 02
Please enter the Month of Anniversary to this register: 7
Do you What to enter details of another anniversary date (y or N)?y
Please enter the ID number to the next register: 1008
Please enter the name of the boy or girls: Jeremy Blum
Please enter the Day of Anniversary to this register: 19
Please enter the Month of Anniversary to this register: 8
Do you What to enter details of another anniversary date (y or N)?y
Please enter the ID number to the next register: 1009
```

```
Please enter the name of the boy or girls: Emanuel Macron
Please enter the Day of Anniversary to this register: 19
Please enter the Month of Anniversary to this register: 9
Do you What to enter details of another anniversary date (y or N)?y
Please enter the ID number to the next register: 1010
Please enter the name of the boy or girls: Paul McArthur
Please enter the Day of Anniversary to this register: 16
Please enter the Month of Anniversary to this register: 10
Do you What to enter details of another anniversary date (y or N)?y
Please enter the ID number to the next register: 1011
Please enter the name of the boy or girls: Peter Roger
Please enter the Day of Anniversary to this register: 17
Please enter the Month of Anniversary to this register: 11
Do you What to enter details of another anniversary date (y or N)?y
Please enter the ID number to the next register: 1012
Please enter the name of the boy or girls: Othon Resende
Please enter the Day of Anniversary to this register: 19
Please enter the Month of Anniversary to this register: 12

 You have Entered these dates:

_____Anniversary_____Calendar_____
 Cod |   Name   | Day | Month
-----------------------------------
 1001 | Gilberto Jr | 14 | 1
 1002 | Mara Maravilha | 12 | 2
 1003 | John Lennon | 30 | 3
 1004 | Elton John | 18 | 4
 1005 | Yves SaintClair | 19 | 5
 1006 | Emily White | 14 | 6
 1007 | Eleanor Endevour | 2 | 7
 1008 | Jeremy Blum | 19 | 8
 1009 | Emanuel Macron | 19 | 9
 1010 | Paul McArthur | 16 | 10
 1011 | Peter Roger | 17 | 11
 1012 | Othon Resende | 19 | 12

_____

_____
```

```
   ************************************************************

       Based on: book - Beginning C From Novice to Professional
       4th Edition Pg 418   Author Ivor Horton
       Chap 11 - Dynamic Memory Allocation for Structure

       UNINTER - Curso: Engenharia da Computação
       Escola Superior Politécnica
       Author: Gilberto Jr RU 3326662
       Edited: J3
       Date: Jun, 2021
 */

#include <stdio.h>
#include <stdlib.h>
 //#include <string.h>

#include <ctype.h>
//#include <stdlib.h>

/* This program uses pointer, malloc and structs :) */

int main(int argc, char* argv[]) {

       /* Declaration of the structure to hold anniversaries data */
       typedef struct Niver
       {
              int id;
              char name[50];
              int day;
              int month;

       }Niver_t;

       /* Pointer to structure array declaration */
       Niver_t* ptr2Calendar[12];

       /* Register counter */
       int rcounter = 0;
```

```c
/* Test value for ending input */
char test = '\0';

/* Variable to deal with buffer's cleaning */
int c;

/* rcount - is the counter for each register entered:) */
for (rcounter = 0; rcounter < 12; rcounter++)
{
	printf("\nDo you What to enter details of a%s anniversary date (y or N)?", rcounter ? "nother" : "");
	scanf_s("%c", &test, sizeof(&test));
	while ((c = getchar()) != '\n' && c != EOF) {}  /* clears input buffer */

	if (tolower(test) == 'n') break;

	/* Allocate memory to hold the structure */
	/* This statement allocates the space for each structure dynamically as it's requered */
	/* The malloc() function allocates the number of bytes specified by its argument and
	   returns the address of the block of memory allocated as a pointer to type void */
	ptr2Calendar[rcounter] = (Niver_t*)malloc(sizeof(Niver_t));

	printf("\nPlease enter the ID number to the next register: ");
	//scanf("%i", &Calendar[rcount].id);                // Read the id of the person in the register
	scanf_s("%i", &ptr2Calendar[rcounter]->id);
	while ((c = getchar()) != '\n' && c != EOF) {}  // clears input buffer

	printf("\nPlease enter the name of the boy or girls: ");
	//gets(Calendar[rcount].name);
	gets_s(ptr2Calendar[rcounter]->name, sizeof(ptr2Calendar[rcounter]->name));
	//while ((c = getchar()) != '\n' && c != EOF) { }

	printf("\nPlease enter the Day of Anniversary to this register: ");
	//scanf("%i", &Calendar[rcount].day); // Read the id of the person in the register
	scanf_s("%i", &ptr2Calendar[rcounter]->day);
	while ((c = getchar()) != '\n' && c != EOF) {}  // clears input buffer

	printf("\nPlease enter the Month of Anniversary to this register: ");
	//scanf("%i", &Calendar[rcount].month);             // Read the id of the person in the register
	scanf_s("%i", &ptr2Calendar[rcounter]->month);
```

```
            while ((c = getchar()) != '\n' && c != EOF) {}  // clears input buffer
        }

        /* Printing the receipt if everything is ok */
        printf("\n You have Entered these dates:\n\n");
        printf("_____Anniversary_____Calendar_____\n");
        printf(" Cod |   Name   | Day | Month \n");
        printf("-------------------------------------\n");
        /* This for loop prints the output and frees the memory allocated, block by block */
        for (int i = 0; i < rcounter; i++)
        {
            //printf("%i| %s |%i |%i \n", Calendar[i].id, Calendar[i].name);
            printf(" %i | %s | %i | %i \n", ptr2Calendar[i]->id, ptr2Calendar[i]->name, ptr2Calendar[i]->day, ptr2Calendar[i]-
>month);
            /* It is very important to free each block of memory previously allocated;
               If you don't keep track and don't free it after malloc, you might have memory leaks :/
               it's considered good style to free memory as soon as you don't need it any more. Read this post:
               https://stackoverflow.com/questions/654754/what-really-happens-when-you-dont-free-after-malloc */
            free(ptr2Calendar[i]);
        }
        printf("\n_____\n");
        printf("\n_____\n");

        return 0;
```

}

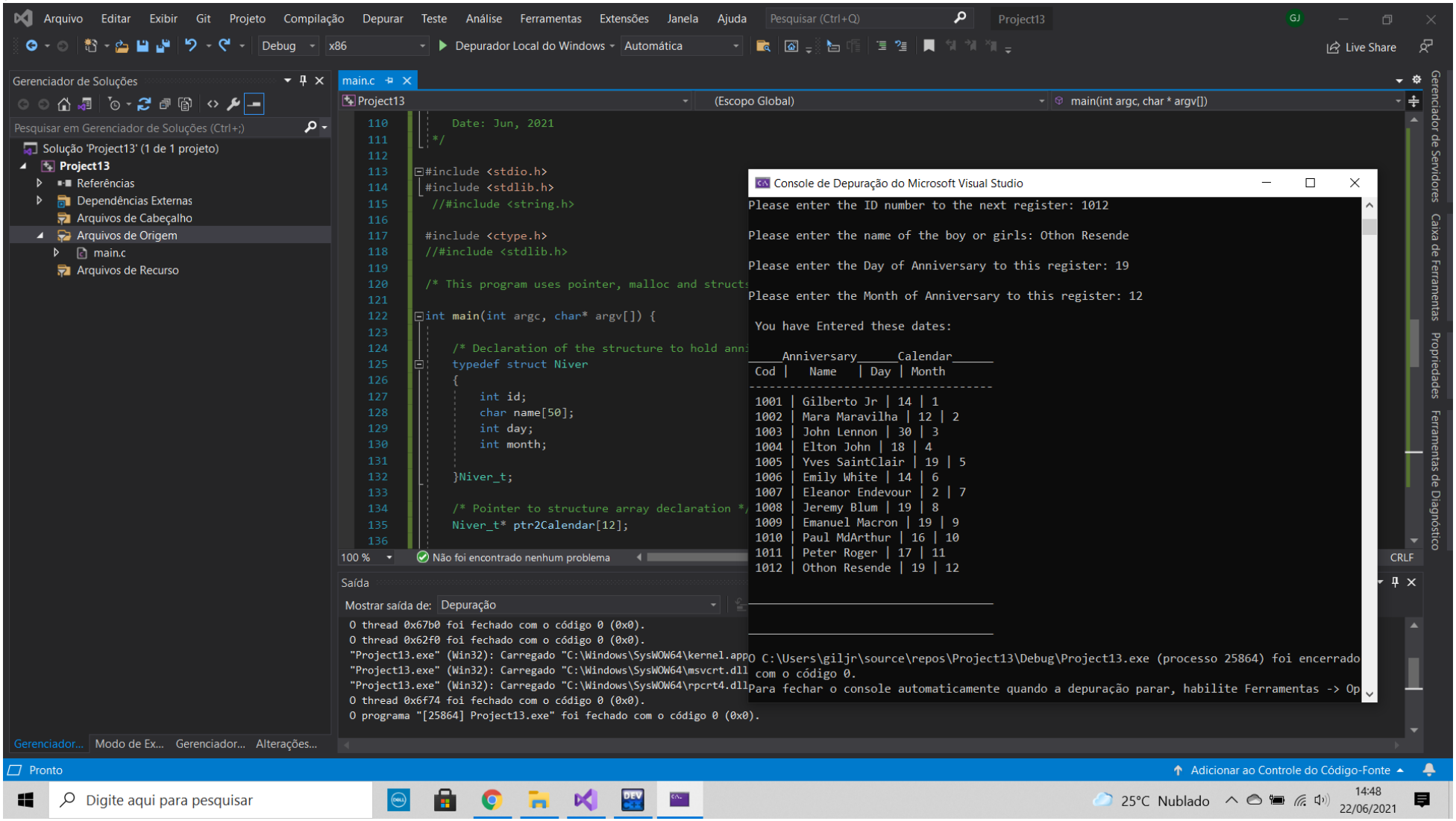

Fig 1 – Practice 1 – Screen Capture from MS Visual Studio 2019.

PRÁTICA 02

Faça um programa onde o usuário digita 3 informações a respeito de uma pessoa: Nome, endereço e telefone. Concatene essas três informações em uma única string e faça uma contagem de quantas letras do alfabeto estão presentes nesta string (considerando as redundâncias) e de dígitos numéricos. Os espaços e os caracteres de pontuação devem ser ignorados (as funções de contagem já fazem isso). Exemplo: Nome: Ana Claudia Endereço: Rui Barbosa, 234 Tel: 234-0912 Resultado: Quantidade de letras pertencentes ao alfabeto = 20. Quantidade de dígitos numéricos = 10

Para demonstrar o funcionamento utilize seu nome completo, seu RU como telefone e o no endereço o nome da sua cidade.

```
/* Project 76

 PRACTICE 2
 1) Make a program where the user enters 3 pieces of information about a person:

  1.1. Name,
  1.2. address and
  1.3. telephone number.

 2) Concatenate these three pieces of information into a single string and

 3) Count how many letters of the alphabet are present in this string (considering redundancies)
       and the numeric digits.

       Spaces and punctuation characters must be ignored (the functions of counting already do that).
  ************************************************************
  output:

       Hi, Please what is your name: Gilberto Oliveira Junior
       Fine, thanks, Gilberto Oliveira Junior!
       Now please enter your complete address: Rua Venezuela, 1875 Porto Velho - Rondonia
       We almost there Gilberto Oliveira Junior...
       Now please enter your phone number: 5569984486664
       Thanks Gilberto Oliveira Junior, You just have entered:

       Name: Gilberto Oliveira Junior;
```

```
       Address: Rua Venezuela, 1875 Porto Velho - Rondonia;
       Phone: 5569984486664

       Concatenation:
       Gilberto Oliveira Junior Rua Venezuela, 1875 Porto Velho - Rondonia 5569984486664

       Number of letters: 55

       Number of digits: 17

       --------------------------------
       Process exited after 103.1 seconds with return value 0

   ************************************************************

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   Edited: J3
   Date: Jun, 2021

*/


#include <string.h>
#include <stdio.h>
#include <ctype.h>



/* initialize letterCount to 0 so that doing letterCount++ does not add 1 to a garbage value */
int letterCount = 0; // counter for number of letters in the string input

/* initialize digitCount to 0 so that doing digitCount++ does not add 1 to a garbage value */
int digitCount = 0; // counter for number of digits in the string input


int main(void)
{
       /* Declaring the structure to hold the Person data */

       typedef struct Person
```
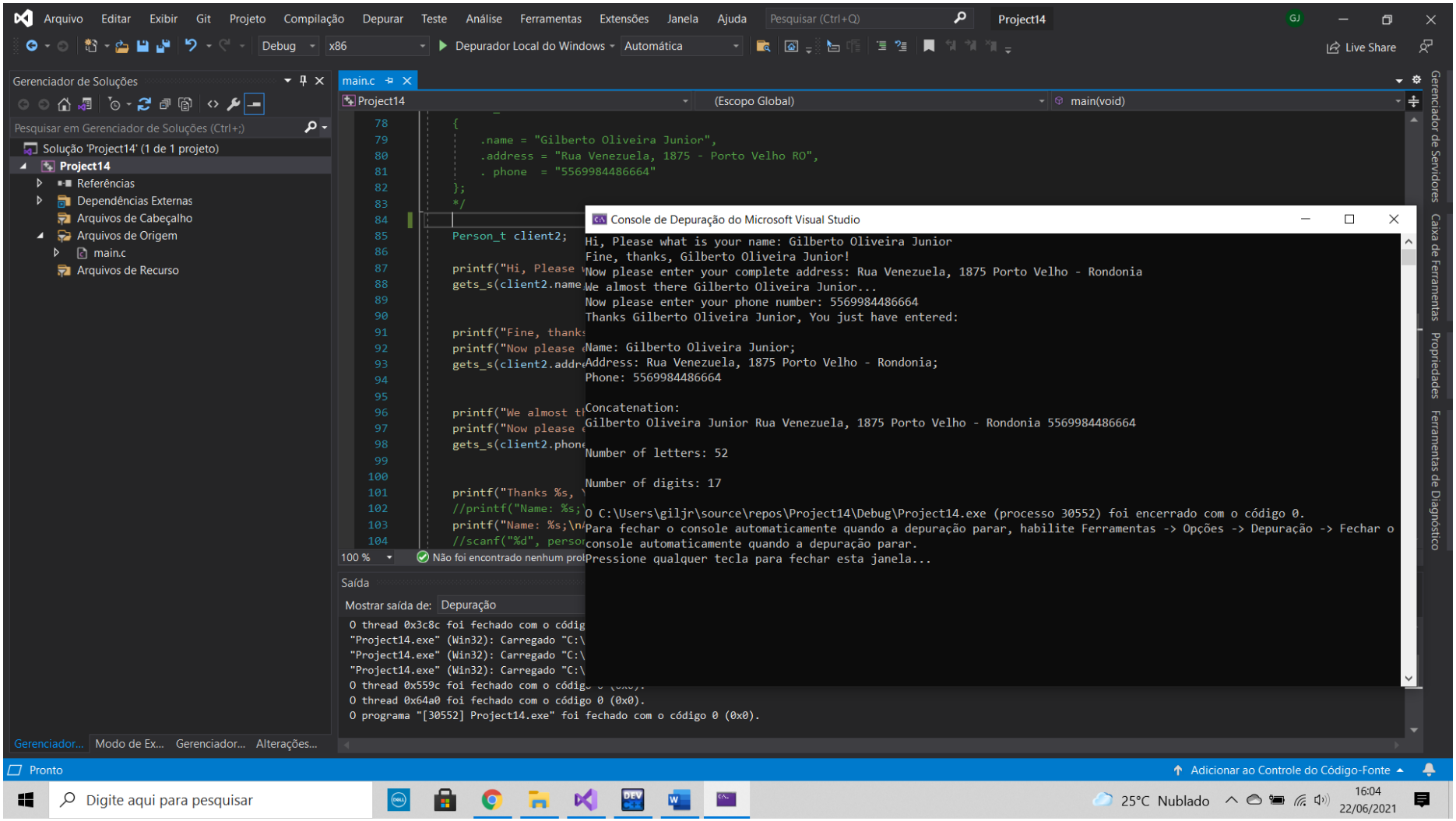

```
{
	char name[50];
	char address[50];
	char phone[14];

}Person_t;


/* Populating the Struts to test the code */
/*
Person_t client1 =
{
	.name = "Gilberto Oliveira Junior",
	.address = "Rua Venezuela, 1875 - Porto Velho RO",
	. phone  = "5569984486664"
};
*/

Person_t client2;

printf("Hi, Please what is your name: ");
gets_s(client2.name, sizeof(client2.name));


printf("Fine, thanks, %s!\n", client2.name);
printf("Now please enter your complete address: ");
gets_s(client2.address, sizeof(client2.address));


printf("We almost there %s...\n", client2.name);
printf("Now please enter your phone number: ");
gets_s(client2.phone, sizeof(client2.phone));


printf("Thanks %s, You just have entered:\n\n", client2.name);
//printf("Name: %s;\nAddress: %s; \nPhone: %s", client1.name, client1.address, client1.phone);
printf("Name: %s;\nAddress: %s; \nPhone: %s", client2.name, client2.address, client2.phone);
//scanf("%d", person_t.name)

char full_id[113];
```

```c
	//strcpy(full_id, client1.name);
	strcpy_s(full_id, sizeof(full_id),client2.name);
	strcat_s(full_id,sizeof(full_id),  " ");       // Concatenating a space
	//strcat(full_id, client1.address);
	strcat_s(full_id, sizeof(full_id), client2.address);
	strcat_s(full_id, sizeof(full_id), " ");       // Concatenating a space
	//strcat(full_id, client1.phone);
	strcat_s(full_id, sizeof(full_id), client2.phone);
	printf("\n\nConcatenation:\n%s", full_id);


	//printf("\nwithout null character: %zu\n", strlen(full_id));
	//printf("\nwith null character:    %zu\n", sizeof full_id);

	/* Loop to count the letters in the input text */
	for (int i = 0; i < sizeof(full_id); i++)
	{
		if (iswalpha(full_id[i])) letterCount++;
	}

	printf("\n\nNumber of letters: %d\n", letterCount);

	/* Loop to count the digits in the input text */
	for (int i = 0; i < sizeof(full_id); i++)
	{
		if (iswdigit(full_id[i])) digitCount++;
	}

	printf("\nNumber of digits: %d\n", digitCount);

	return 0;
}
```


Arquivo Editar Exibir Git Projeto Compilação Depurar Teste Análise Ferramentas Extensões Janela Ajuda
Pesquisar (Ctrl+Q)
Project14
Debug
x86
Depurador Local do Windows
Automática
Live Share
Gerenciador de Soluções
Pesquisar em Gerenciador de Soluções (Ctrl+;)
Solução 'Project14' (1 de 1 projeto)
Project14
Referências
Dependências Externas
Arquivos de Cabeçalho
Arquivos de Origem
main.c
Arquivos de Recurso
main.c
Project14
(Escopo Global)
main(void)
78 {
79 .name = "Gilberto Oliveira Junior",
80 .address = "Rua Venezuela, 1875 - Porto Velho RO",
81 . phone = "5569984486664"
82 };
83 */
84
85 Person_t client2;
86
87 printf("Hi, Please
88 gets_s(client2.name
89
90
91 printf("Fine, thank
92 printf("Now please
93 gets_s(client2.addr
94
95
96 printf("We almost t
97 printf("Now please
98 gets_s(client2.phon
99
100
101 printf("Thanks %s,
102 //printf("Name: %s;
103 printf("Name: %s;\n
104 //scanf("%d", perso
100 %
Não foi encontrado nenhum pro
Saída
Mostrar saída de: Depuração
O thread 0x3c8c foi fechado com o códig
"Project14.exe" (Win32): Carregado "C:\
"Project14.exe" (Win32): Carregado "C:\
"Project14.exe" (Win32): Carregado "C:\
O thread 0x559c foi fechado com o códig
O thread 0x64a0 foi fechado com o código 0 (0x0).
O programa "[30552] Project14.exe" foi fechado com o código 0 (0x0).
Gerenciador...
Modo de Ex...
Gerenciador...
Alterações...
Console de Depuração do Microsoft Visual Studio
Hi, Please what is your name: Gilberto Oliveira Junior
Fine, thanks, Gilberto Oliveira Junior!
Now please enter your complete address: Rua Venezuela, 1875 Porto Velho - Rondonia
We almost there Gilberto Oliveira Junior...
Now please enter your phone number: 5569984486664
Thanks Gilberto Oliveira Junior, You just have entered:
Name: Gilberto Oliveira Junior;
Address: Rua Venezuela, 1875 Porto Velho - Rondonia;
Phone: 5569984486664
Concatenation:
Gilberto Oliveira Junior Rua Venezuela, 1875 Porto Velho - Rondonia 5569984486664
Number of letters: 52
Number of digits: 17
O C:\Users\giljr\source\repos\Project14\Debug\Project14.exe (processo 30552) foi encerrado com o código 0.
Para fechar o console automaticamente quando a depuração parar, habilite Ferramentas -> Opções -> Depuração -> Fechar o console automaticamente quando a depuração parar.
Pressione qualquer tecla para fechar esta janela...
Gerenciador de Servidores
Caixa de Ferramentas
Propriedades
Ferramentas de Diagnóstico
Pronto
Adicionar ao Controle do Código-Fonte
Digite aqui para pesquisar
25°C Nublado
16:04
22/06/2021

PRÁTICA 03

Faça um programa C para calcular o número de lâmpadas 60 watts necessárias para um determinado cômodo. O programa deverá ler um conjunto de informações, tais como: tipo, largura e comprimento do cômodo. O programa termina quando o tipo de cômodo for igual -1. A tabela abaixo mostra, para cada tipo de cômodo, a quantidade de watts por metro quadrado . Use uma estrutura struct para agrupar logicamente as informações de um comodo (int tipo de comodo, float largura e float comprimento). Usar uma função com o protótipo: void CalulaArea(float *área, float *comprimento, float *largura); para calcular a área do cômodo. Os atributos de entrada serão a largura e comprimento do cômodo. Usar uma função com o protótipo: float Lampada(int, tipo, float area); para calcular a quantidade de lâmpadas necessárias para o cômodo. Os atributos de entrada serão o tipo de cômodo e a metragem (em m2) do cômodo. Ao final mostrar para o usuário a quantidade de lâmpadas em valores inteiros arredondado para cima. Para demonstrar o funcionamento utilize como largura do cômodo os dois primeiros dígitos do seu RU e para largura os dois últimos dígitos do seu RU

```
/* Project 78

       PRACTICE 3

       Make a C program to calculate the number of 60 watt lamps needed for a      particular room.

       The program should read a set of information, such as: type, width and      length of room.
       The program ends when the room type equals -1.
       The table below shows, for each type of room, the amount of watts per square meter:

       kind of room  - Power (w)
                 0      -   12
                 1      -   15
                 2      -   18
                 3      -   20
                 4      -   22

       Use a struct structure to logically group information.

       Here's the prototyping functions proposed:

       room(int type of room, float width and float length).

       Use a function with the prototype:
```

```
        void Calc_area(float *area, float *length, float *width);

        to calculate the area of the room.

        The input attributes will be the room's width and length. Use a function with the prototype:

        float Lamp(int type, float area);

        to calculate the number of lamps needed for the room.
        The input attributes will be the type of room and the size (in m2) of the room.

        At the end, show the user the number of lamps in rounded integer values up.

        To demonstrate the operation, use the first two digits of the room as the width of the room.
        its RU and for height the last two digits of its RU.

        ************************************************************
        Output:

        Please, enter the width of your area: 33.0
        Please, enter the height of your area: 62.0
        Please, enter the type of your room: 0
        171 lamps will be necessary for 2046.00 m^2 of area of type 0

        ************************************************************
        Output /: invalid type entered :/

        Please, enter the width of your area: 33.0
        Please, enter the height of your area: 62.0
        Please, enter the type of your room: 8
        Invalid Type entered :/
        Type range (0-4) :)
        Please, try again...
        ************************************************************

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        Curso : Engenharia da Computação
        Date: Jun, 2021
*/
```
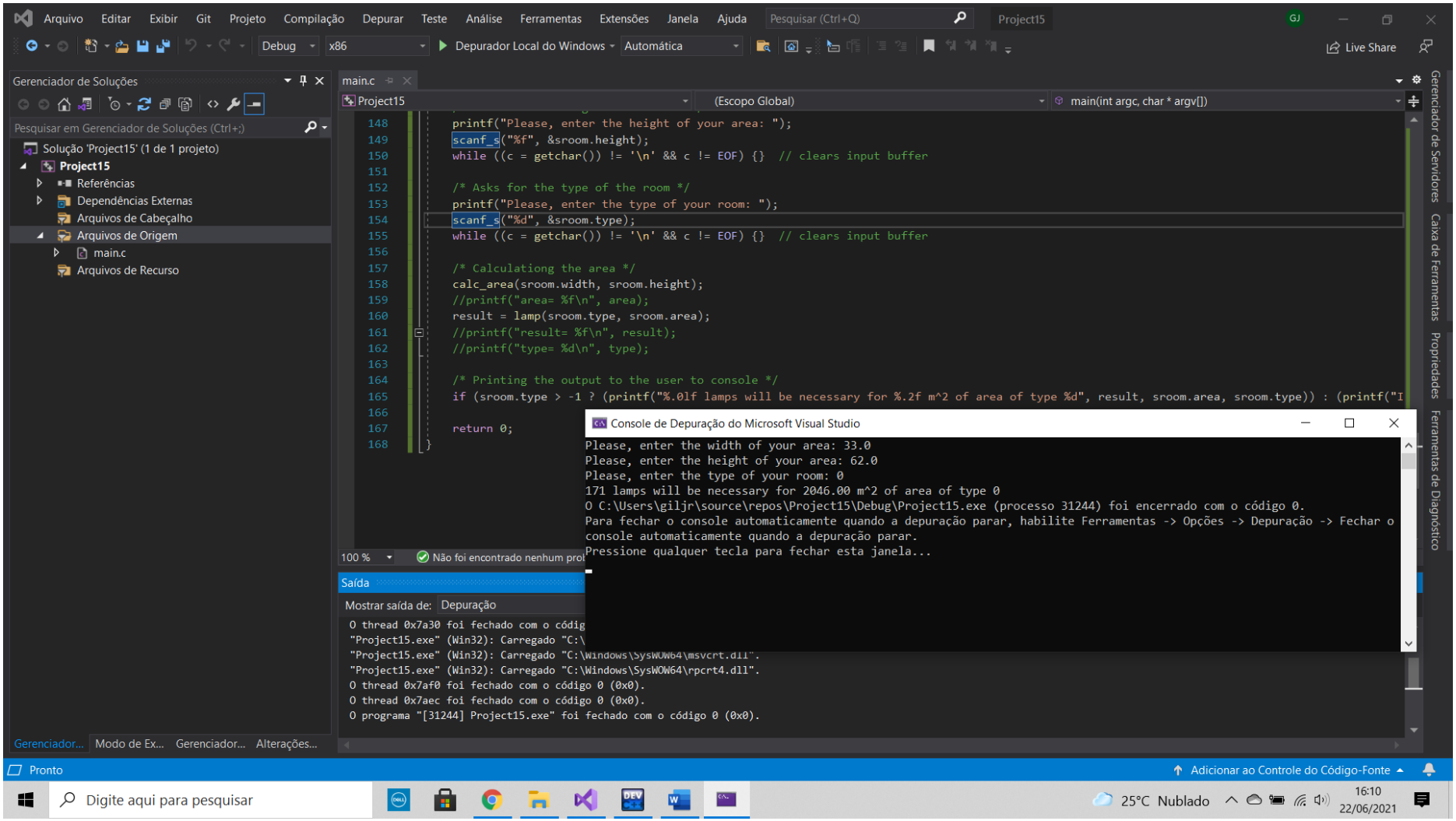

```c
#include <stdio.h>
#include <stdlib.h>
#include <math.h>

/* run this program using the console pauser or add your own getch, system("pause") or input loop */

/* Variables Declarations */
//int type = -1;
//float width = 0.0;
//float height = 0.0;
//float area = 0.0;

/* Struct Declaration */
typedef struct Room
{
	int type;
	float width;
	float height;
	float area;

} Room_t;

double result = 0.0;
int c;

/* Prototypes */
void calc_area(float, float);
float mult(float, float);
float divide(float, float);

/* Variable of typedef struct Room named Room_t and alias sroom */
Room_t sroom;

/* The room object */
void room(int _type, float _width, float _height)
{
	sroom.type = _type;
	sroom.width = _width;
```

```
	sroom.height = _height;

}

/* Calculation of the area of the room */
void calc_area(float width, float height)
{
	sroom.area = mult(width, height);
}


/* Operations */
float mult(float a, float b) { return (a * b); };
float divide(float a, float b) { return (a / b); };

float lamp(int type, float _area)
{
	/* Choose one of the types of the room, rounding values up and returning double */
	switch (type)
	{
	case 0: result = (double)ceil(divide(_area, 12)); break;
	case 1: result = (double)ceil(divide(_area, 15)); break;
	case 2: result = (double)ceil(divide(_area, 18)); break;
	case 3: result = (double)ceil(divide(_area, 20)); break;
	case 4: result = (double)ceil(divide(_area, 22)); break;
	default: return sroom.type = -1; break;
	}

	return result;
}


int main(int argc, char* argv[]) {


	//room(1, 33.0, 62.0);
	/* Asks for the width of the room */
	printf("Please, enter the width of your area: ");
	scanf_s("%f", &sroom.width);
	while ((c = getchar()) != '\n' && c != EOF) {}  // clears input buffer
```

```c
        /* Asks for the height of the room */
        printf("Please, enter the height of your area: ");
        scanf_s("%f", &sroom.height);
        while ((c = getchar()) != '\n' && c != EOF) {}  // clears input buffer

        /* Asks for the type of the room */
        printf("Please, enter the type of your room: ");
        scanf_s("%d", &sroom.type);
        while ((c = getchar()) != '\n' && c != EOF) {}  // clears input buffer

        /* Calculationg the area */
        calc_area(sroom.width, sroom.height);
        //printf("area= %f\n", area);
        result = lamp(sroom.type, sroom.area);
        //printf("result= %f\n", result);
        //printf("type= %d\n", type);

        /* Printing the output to the user to console */
        if (sroom.type > -1 ? (printf("%.0lf lamps will be necessary for %.2f m^2 of area of type %d", result, sroom.area,
sroom.type)) : (printf("Invalid Type entered :/\nType range (0-4) :)\nPlease, try again...")));

        return 0;
}
```


Arquivo Editar Exibir Git Projeto Compilação Depurar Teste Análise Ferramentas Extensões Janela Ajuda
Pesquisar (Ctrl+Q)
Project15
Debug
x86
Depurador Local do Windows
Automática
Live Share
Gerenciador de Soluções
Pesquisar em Gerenciador de Soluções (Ctrl+;)
Solução 'Project15' (1 de 1 projeto)
Project15
Referências
Dependências Externas
Arquivos de Cabeçalho
Arquivos de Origem
main.c
Arquivos de Recurso
main.c
Project15
(Escopo Global)
main(int argc, char * argv[])
printf("Please, enter the height of your area: ");
scanf_s("%f", &sroom.height);
while ((c = getchar()) != '\n' && c != EOF) {} // clears input buffer
/* Asks for the type of the room */
printf("Please, enter the type of your room: ");
scanf_s("%d", &sroom.type);
while ((c = getchar()) != '\n' && c != EOF) {} // clears input buffer
/* Calculationg the area */
calc_area(sroom.width, sroom.height);
//printf("area= %f\n", area);
result = lamp(sroom.type, sroom.area);
//printf("result= %f\n", result);
//printf("type= %d\n", type);
/* Printing the output to the user to console */
if (sroom.type > -1 ? (printf("%.0lf lamps will be necessary for %.2f m^2 of area of type %d", result, sroom.area, sroom.type)) : (printf("I
return 0;
}
100 %
Não foi encontrado nenhum prol
Console de Depuração do Microsoft Visual Studio
Please, enter the width of your area: 33.0
Please, enter the height of your area: 62.0
Please, enter the type of your room: 0
171 lamps will be necessary for 2046.00 m^2 of area of type 0
O C:\Users\giljr\source\repos\Project15\Debug\Project15.exe (processo 31244) foi encerrado com o código 0.
Para fechar o console automaticamente quando a depuração parar, habilite Ferramentas -> Opções -> Depuração -> Fechar o console automaticamente quando a depuração parar.
Pressione qualquer tecla para fechar esta janela...
Saída
Mostrar saída de: Depuração
O thread 0x7a30 foi fechado com o códig
"Project15.exe" (Win32): Carregado "C:\
"Project15.exe" (Win32): Carregado "C:\Windows\SysWOW64\msvcrt.dll".
"Project15.exe" (Win32): Carregado "C:\Windows\SysWOW64\rpcrt4.dll".
O thread 0x7af0 foi fechado com o código 0 (0x0).
O thread 0x7aec foi fechado com o código 0 (0x0).
O programa "[31244] Project15.exe" foi fechado com o código 0 (0x0).
Gerenciador...
Modo de Ex...
Gerenciador...
Alterações...
Gerenciador de Servidores
Caixa de Ferramentas
Propriedades
Ferramentas de Diagnóstico
Pronto
Adicionar ao Controle do Código-Fonte
Digite aqui para pesquisar
25°C Nublado
16:10
22/06/2021

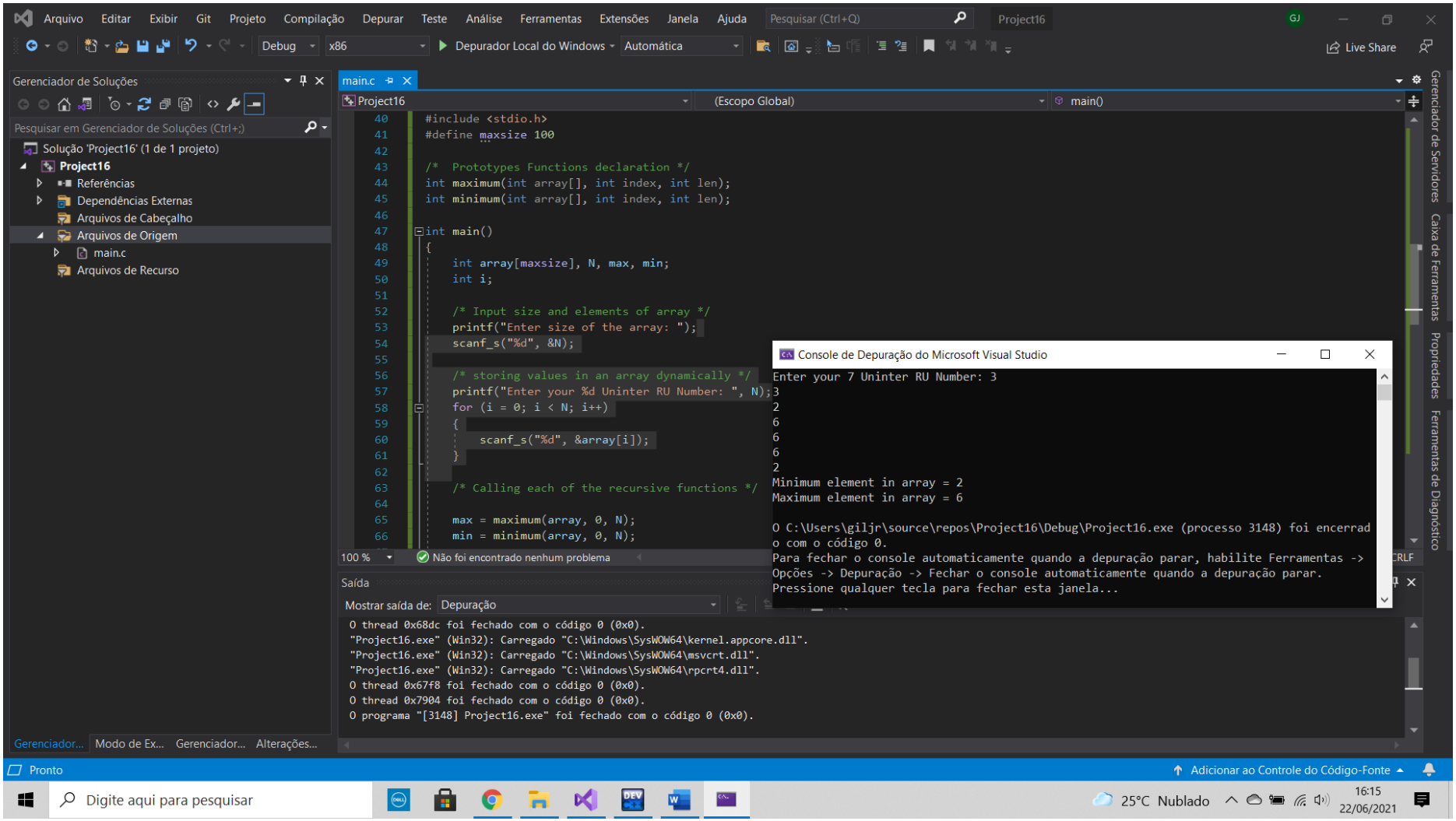
PRÁTICA 04

Escreva em linguagem C um algoritmo que: ✓ Solicite ao usuário que digite o seu RU; ✓ Armazene cada dígito do RU em uma posição de um vetor, por exemplo: Vetor RU Primeiro dígito Último dígito Posição do vetor RU 0 1 2 3 4 5 6 ✓ Utilizando uma função recursiva mostre o qual o valor do menor dígito inserido no vetor. ✓ Utilizando outra função recursiva mostre o qual o valor do maior dígito inserido no vetor Para demonstrar o funcionamento utilize o seu RU como entrada para o algoritmo.

```
/*
Project 75

   This program shows how to use recursion to find the minimum
   and the maximum numbers from an given array.

   Practice Exercise nº 4:

   Write in C language an algorithm that:
   1) Ask the user to enter their RU;
   2) Store each RU digit in a position of a vector;
   3)Using a recursive function show what is the value of the smallest digit entered in the vector;
   4) Using another recursive function show which value of the largest digit entered in the vector.

   To demonstrate the operation use your RU as input to the algorithm.
   ************************************************************
   output:

    Enter size of the array: 7
    Enter your 7 Uninter RU Number: 3
    3
    2
    6
    6
    6
    2
    Minimum element in array = 2
    Maximum element in array = 6

    --------------------------------
```

```
    Process exited after 17.58 seconds with return value 0

   ************************************************************

   Author: Gilberto Oliveira Junior RU 3326662
   Edited: J3
   Date: Jun, 2021
*/

#include <stdio.h>
#define maxsize 100

/*  Prototypes Functions declaration */
int maximum(int array[], int index, int len);
int minimum(int array[], int index, int len);

int main()
{
    int array[maxsize], N, max, min;
    int i;

    /* Input size and elements of array */
    printf("Enter size of the array: ");
    scanf_s("%d", &N);

    /* storing values in an array dynamically */
    printf("Enter your %d Uninter RU Number: ", N);
    for (i = 0; i < N; i++)
    {
        scanf_s("%d", &array[i]);
    }

    /* Calling each of the recursive functions */

    max = maximum(array, 0, N);
    min = minimum(array, 0, N);

    printf("Minimum element in array = %d\n", min);
    printf("Maximum element in array = %d\n", max);
```

```
    return 0;
}

/* Recursive Maximum function declaration */
int maximum(int array[], int index, int len)
{
    int max;

    if (index >= len - 2)
        return (array[index] > array[index + 1])
        ? array[index]
        : array[index + 1];

    max = maximum(array, index + 1, len);

    return (array[index] > max)
        ? array[index]
        : max;
}

/* Recursive Minimum function declaration */
int minimum(int array[], int index, int len)
{
    int min;

    if (index >= len - 2)
    {
        return (array[index] < array[index + 1])
            ? array[index]
            : array[index + 1];
    }

    min = minimum(array, index + 1, len);

    return (array[index] < min)
        ? array[index]
        : min;
}
```


Arquivo Editar Exibir Git Projeto Compilação Depurar Teste Análise Ferramentas Extensões Janela Ajuda
Pesquisar (Ctrl+Q)
Project16
Debug
x86
Depurador Local do Windows
Automática
Live Share
Gerenciador de Soluções
Pesquisar em Gerenciador de Soluções (Ctrl+;)
Solução 'Project16' (1 de 1 projeto)
Project16
Referências
Dependências Externas
Arquivos de Cabeçalho
Arquivos de Origem
main.c
Arquivos de Recurso
main.c
Project16
(Escopo Global)
main()
#include <stdio.h>
#define maxsize 100
/* Prototypes Functions declaration */
int maximum(int array[], int index, int len);
int minimum(int array[], int index, int len);
int main()
{
int array[maxsize], N, max, min;
int i;
/* Input size and elements of array */
printf("Enter size of the array: ");
scanf_s("%d", &N);
/* storing values in an array dynamically */
printf("Enter your %d Uninter RU Number: ", N);
for (i = 0; i < N; i++)
{
scanf_s("%d", &array[i]);
}
/* Calling each of the recursive functions */
max = maximum(array, 0, N);
min = minimum(array, 0, N);
100 %
Não foi encontrado nenhum problema
Console de Depuração do Microsoft Visual Studio
Enter your 7 Uninter RU Number: 3
3
2
6
6
6
2
Minimum element in array = 2
Maximum element in array = 6
O C:\Users\giljr\source\repos\Project16\Debug\Project16.exe (processo 3148) foi encerrado com o código 0.
Para fechar o console automaticamente quando a depuração parar, habilite Ferramentas -> Opções -> Depuração -> Fechar o console automaticamente quando a depuração parar.
Pressione qualquer tecla para fechar esta janela...
Saída
Mostrar saída de: Depuração
O thread 0x68dc foi fechado com o código 0 (0x0).
"Project16.exe" (Win32): Carregado "C:\Windows\SysWOW64\kernel.appcore.dll".
"Project16.exe" (Win32): Carregado "C:\Windows\SysWOW64\msvcrt.dll".
"Project16.exe" (Win32): Carregado "C:\Windows\SysWOW64\rpcrt4.dll".
O thread 0x67f8 foi fechado com o código 0 (0x0).
O thread 0x7904 foi fechado com o código 0 (0x0).
O programa "[3148] Project16.exe" foi fechado com o código 0 (0x0).
Gerenciador... Modo de Ex... Gerenciador... Alterações...
Pronto
Adicionar ao Controle do Código-Fonte
Digite aqui para pesquisar
25°C Nublado
16:15
22/06/2021

PRÁTICA 05

Crie um programa, em linguagem C, que receba 6 registros contendo, Nome do Produto, Código do produto (numérico), valor do produto. Solicite que sejam digitados todos os dados de todos os registros e ao final salve-os em um arquivo.csv, utilize o ; (ponto e vírgula) para separador e campo. O nome do arquivo deve ser o seu número de RU.

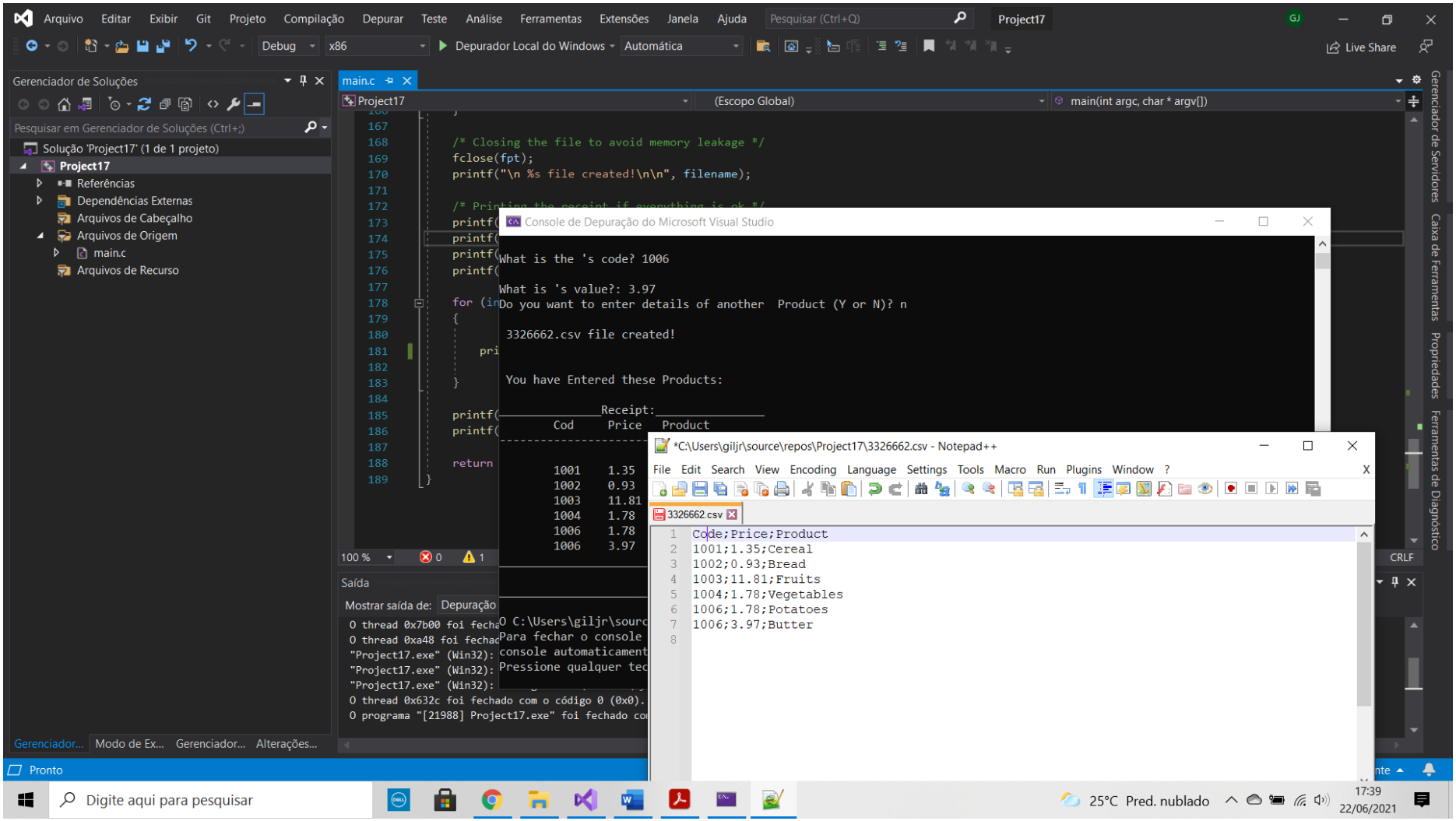
```
#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>


/* Project 72

   This program solves this Practice exercise from my Computer Enginner's home work at:

   UNINTER - Engenharia da Computação - Escola Superior Politécnica - https://www.uninter.com

   PRACTICE 05
       Create a program, in C language, that receives 6 records containing, Product Name,
       Product code (numeric), product value. Request that all data for everyone be entered
       the records and at the end save them in a.csv file, use the ; (semicolon) for separator and
       field. The file name must be your RU number.
       Example:

   Some notes:
   pcount - used to accumulate the total number of structure entered;
   scanf() - Reads the char/int entered by the user;
   break - immediately exits from the loop if the response is negative;
   struct product My_prods[50] - This creates the potential for the program to read in data for up to 50 products
   How to clear input buffer in C? https://stackoverflow.com/questions/7898215/how-to-clear-input-buffer-in-c

   ************************************************************
   output:

       Do you want to enter details of a Product (Y or N)? y

       Enter the name of the product: Cereal
```

```
What is the Cereal's code? 1001

What is Cereal's value?: 1.35
Do you want to enter details of another  Product (Y or N)? y

Enter the name of the product: Bread

What is the Bread's code? 1002

What is Bread's value?: 0.93
Do you want to enter details of another  Product (Y or N)? y

Enter the name of the product: Fruits

What is the Fruits's code? 1003

What is Fruits's value?: 11.81
Do you want to enter details of another  Product (Y or N)? y

Enter the name of the product: Vegetables

What is the Vegetables's code? 1004

What is Vegetables's value?: 3.93
Do you want to enter details of another  Product (Y or N)? y

Enter the name of the product: Potatoes

What is the Potatoes's code? 1005

What is Potatoes's value?: 1.78
Do you want to enter details of another  Product (Y or N)? y

Enter the name of the product: Butter

What is the Butter's code? 1006

What is Butter's value?: 3.97
Do you want to enter details of another  Product (Y or N)? n
```

```
 3326662.csv file created!


 You have Entered these Products:

_____________Receipt:_____________
              Cod     Price   Product
-------------------------------------

              1001    1.35    Cereal
              1002    0.93    Bread
              1003    11.81   Fruits
              1004    3.93    Vegetables
              1005    1.78    Potatoes
              1006    3.97    Butter
_____________________________________

_____________________________________

--------------------------------
Process exited after 178.2 seconds with return value 0

************************************************************
    File (3326662.csv) content:

    Code;Price;Product
    1001;1.35;Cereal
    1002;0.93;Bread
    1003;11.81;Fruits
    1004;3.93;Vegetables
    1005;1.78;Potatoes
    1006;3.97;Butter

    ************************************************************

  Author: Gilberto Jr RU 3326662
  Curso : Engenharia da Computação
  Date: Jun, 2021
*/
```

```c
int main(int argc, char* argv[]) {

	/* The name of the file is my University Registration number plus .csv estention file*/

	char filename[] = "3326662.csv";

	/* Using Struct to represent the Product collection */
	struct product
	{
		char name[20];
		int code;
		float  value;
	};

	/* Initializing the variable named My_prod of type struct product */
	struct product My_prods[6];
	int pcount = 0;
	char test = '\0';

	/* This routine asks the user the name of 6 products populating the structure declared above */
	for (pcount = 0; pcount < 50; pcount++)
	{
		int c;
		printf("Do you want to enter details of a%s Product (Y or N)? ", pcount ? "nother " : "");
		scanf_s(" %c", &test, sizeof(&test));

		if (tolower(test) == 'n') break;                    // If negative, break the loop :/

		printf("\nEnter the name of the product: ");
		scanf_s("%s", &My_prods[pcount].name, sizeof(&My_prods[pcount].name));                  // Read the product's name
		while ((c = getchar()) != '\n' && c != EOF) {}         // clears input buffer

		printf("\nWhat is the %s's code? ", My_prods[pcount].name);
		scanf_s("%d", &My_prods[pcount].code);                 // Read the product's code
		while ((c = getchar()) != '\n' && c != EOF) {}  // clears input buffer

		printf("\nWhat is %s's value?: ", My_prods[pcount].name);
		scanf_s("%f", &My_prods[pcount].value);                      // Read the product's value
		while ((c = getchar()) != '\n' && c != EOF) {}  // clears input buffer
```

```
	}

	/* Initialize the file to save all inside as .csv file */
	FILE * fpt;
	errno_t err;

	err = fopen_s(&fpt, filename, "w+");
	fprintf(fpt, "Code;Price;Product\n");

	/* Saving all Products to a File */
	for (int i = 0; i < pcount; i++)
	{
		fprintf(fpt, "%d;%.2f;%s\n", My_prods[i].code, My_prods[i].value, My_prods[i].name);
	}

	/* Closing the file to avoid memory leakage */
	fclose(fpt);
	printf("\n %s file created!\n\n", filename);

	/* Printing the receipt if everything is ok */
	printf("\n You have Entered these Products:\n\n");
	printf("_________________Receipt:_________________\n");
	printf("\tCod\tPrice\tProduct\n");
	printf("---------------------------------------\n");

	for (int i = 0; i < pcount; i++)
	{

		printf("\n\t%d\t%.2f\t%s", My_prods[i].code, My_prods[i].value, My_prods[i].name);

	}

	printf("\n_____________________________________________\n");
	printf("\n_____________________________________________\n");

	return 0;
}
```


Arquivo Editar Exibir Git Projeto Compilação Depurar Teste Análise Ferramentas Extensões Janela Ajuda
Project17
Debug x86 Depurador Local do Windows Automática
Live Share
Gerenciador de Soluções
Solução 'Project17' (1 de 1 projeto)
Project17
Referências
Dependências Externas
Arquivos de Cabeçalho
Arquivos de Origem
main.c
Arquivos de Recurso
main.c
(Escopo Global)
main(int argc, char * argv[])
/* Closing the file to avoid memory leakage */
fclose(fpt);
printf("\n %s file created!\n\n", filename);
Console de Depuração do Microsoft Visual Studio
What is the 's code? 1006
What is 's value?: 3.97
Do you want to enter details of another Product (Y or N)? n
3326662.csv file created!
You have Entered these Products:
Receipt:
Cod Price Product
1001 1.35
1002 0.93
1003 11.81
1004 1.78
1006 1.78
1006 3.97
*C:\Users\giljr\source\repos\Project17\3326662.csv - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
3326662.csv
Code;Price;Product
1001;1.35;Cereal
1002;0.93;Bread
1003;11.81;Fruits
1004;1.78;Vegetables
1006;1.78;Potatoes
1006;3.97;Butter
Saída
Mostrar saída de: Depuração
Pronto
Digite aqui para pesquisar
25°C Pred. nublado
17:39
22/06/2021